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PADDYS RUN ROAD SITE SOIL GAS SURVEY

11/01/91

OEPA/DOE-FO

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LETTER

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State of Ohio Environmental Protection Agency

Southwest District Office

40 South Main Street
Dayton, Ohio 45402-2086
(513) 285-6357
FAX (513) 285-6249

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George V. Voinovich
Governor

November 1, 1991

Re: **PADDYS RUN ROAD
SITE SOIL GAS SURVEY**

Mr. Carlos Fermain
DOE FEMP
P.O. Box 398705
Cincinnati, Ohio 45239-8075

Dear Carlos:

Attached is the information on the Paddys Run Road Site Soil Gas Survey. It was quite limited but hopefully some of the information will be useful to you. The excerpts are from the Work Plan and Statement of Qualifications for ENSR RI/FS (3/89) and the Preliminary Activities Report (4/90).

If you have any questions feel free to call Donna Bohannon, the PRRS Site Coordinator for Ohio EPA or myself at (513) 285-6357.

Sincerely,

Tom Schneider
Division of Emergency
and Remedial Response

TS/mlf

Encl.

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- o Equipment used.
- o Name, address, telephone number and company of utility personnel.
- o Utility personnel making Site visit (if any), including and dates, times, and locations.
- o Other significant observations and information.

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The data obtained at each location will also be written on a field copy of the Site map.

5.2.5 Soil Gas Survey

A soil gas survey will be conducted on the RNCC property in the vicinity of previously existing lagoons which were used to treat process wastewaters. The purpose of the survey is to identify areas with volatile organics contamination, if any, and to trace the direction of any plume. Results of the survey will be used to relocate proposed soil-sampling points into areas with highest apparent contamination and provide additional guidance as to the final locations of the currently proposed monitoring wells. Approximately 30 locations will be sampled to determine the presence of volatile organic compounds. The proposed sampling locations are shown on Figure SSSP-6. Prior to starting the soil gas vapor survey, sampling points will be identified in the field.

The survey will be conducted using either a PID (Photovac GC 10S50 or HNu) or FID (OVA). The operational procedures for the Photovac GC are provided in the QA/QC Plan Appendix. The operational procedures for the HNu and OVA are also provided in the QA/QC Plan Appendix. These other two instruments (the HNu and OVA) are listed to provide options in the event difficulties are experienced with the Photovac due to weather conditions or instrument malfunction. It should be noted the Photovac is the primary instrument which will be used for the survey.

At each sampling point, a small diameter hole will be advanced to a depth of three feet using a drop hammer.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

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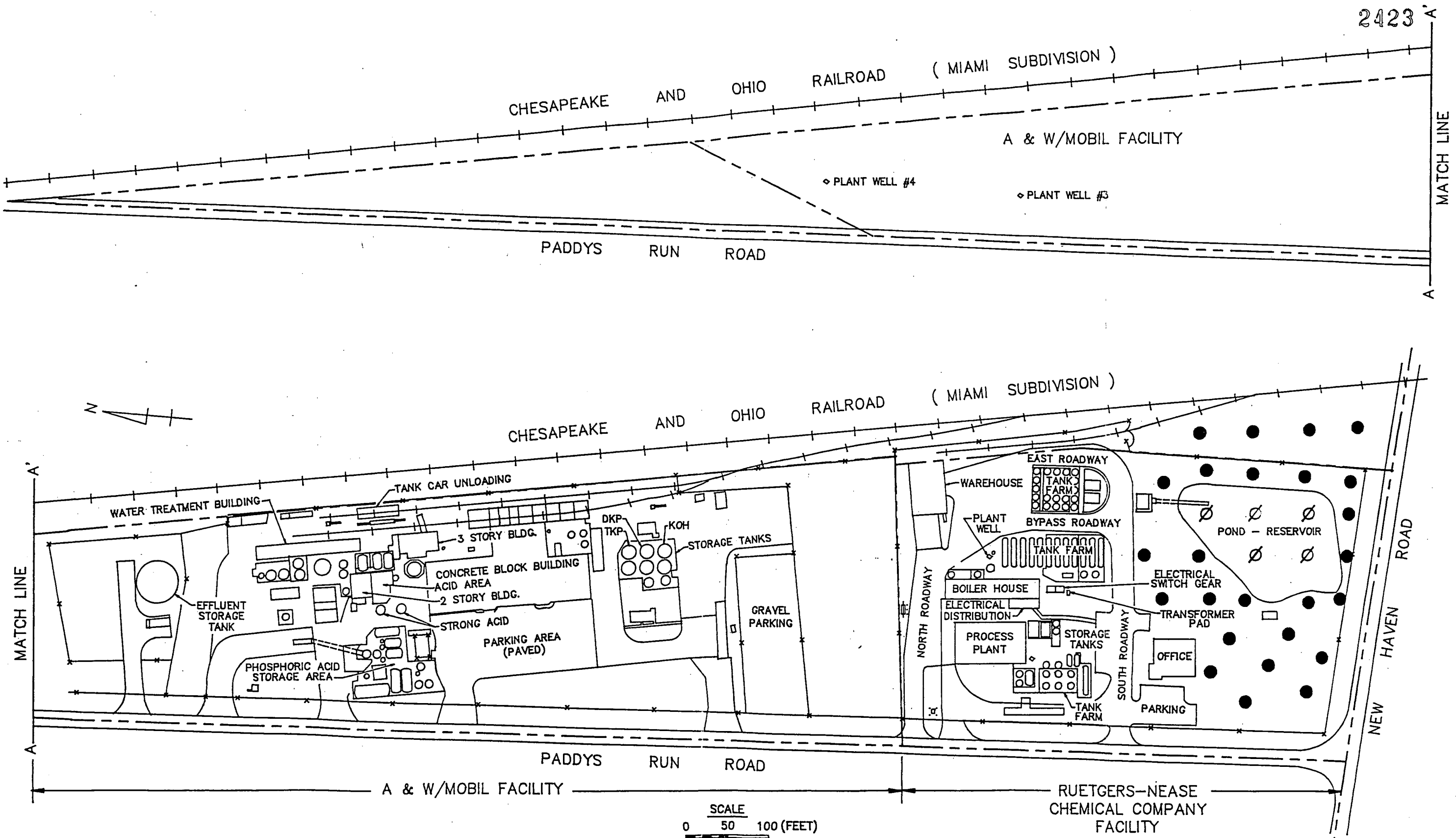


FIGURE SSSP-6
PADDY'S RUN ROAD SITE
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
SOIL GAS SAMPLING LOCATIONS

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By: Bob Evans Date 5-18-89

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Immediately after completion of the hole, the Photovac sampling probe will be placed in the hole, and soil vapors will be extracted via the Photovac internal pump system. After pumping is complete, the instrument's sample run will be activated to measure the vapors. The sample run will last 10 to 15 minutes to ensure that the contaminants of concern (i.e., benzene, toluene, xylene, and cumene) are measured. At the end of the analysis, there will be a print-out of parameters, followed by a list of the compounds detected. The strip chart will be maintained with the field records. An air blank will be run between each test to ensure that residual contaminants are purged from the system.

Should the HNu or OVA be used in place of the Photovac GC, the following procedures will be used. After the hole has been advanced with the hammer, the HNu or OVA probe tip will be inserted in the hole. A 10.2 eV probe will be used if the HNu is the instrument utilized. Values will be displayed on the instrument during the duration of the test (several minutes). The highest value noted along with the stabilized value will be recorded in the field log book.

For either of the three above-mentioned instruments, the following information will be maintained in the field log book:

- o time and date of survey;
- o name(s) of personnel conducting the survey;
- o weather conditions;
- o soil conditions;
- o location of testing;
- o instrument used; and
- o any other significant observations and information.

5.2.6 Geophysical Investigation

Electromagnetic (EM) and surface resistivity surveys will be performed to aid in the determination of the lateral and vertical distribution of potential contamination, and the subsurface stratigraphy.

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Water used for decontamination was purchased from a local vendor. According to the vendor, this water was obtained from the Cincinnati Water Authority.

3.4 Air Investigation

The perimeter air investigation was conducted on May 1, 1989. This investigation consisted of walking A&W and R-N plants' perimeters with an Flame Ionization Detector (FID) manufactured by Foxboro (OVA-128). The OVA was set at the survey mode and measurements were made at ground level and at height of approximately 4 to 5 feet above the ground.

Prior to conducting the survey, the OVA was calibrated with a methane standard (95 ppm). Weather conditions during the survey included partly cloudy skies, temperature of 55° to 60°F and very light winds from the northeast. The results of this survey are presented in Section 4.0.

3.5 Soil Gas Survey

A soil gas survey was conducted on the R-N property on June 26 and 27, 1989 using a Photovac 10S50 Photoionization detection instrument. The survey was conducted at locations shown on Figure 3-2. The following provides a description of the calibration and sampling procedures.

3.5.1 Calibration

Prior to making measurements each day, standards for benzene, toluene, xylene and cumene were made using known volumes of these compounds. The photovac was calibrated both at the beginning and end of each sampling day.

Following calibration, an air blank was run. Air blanks consisted of analyzing the ambient air. The air blanks provide a means to purge compounds from the instrument and to determine the presence of residual compounds in the probe or inlet line prior to

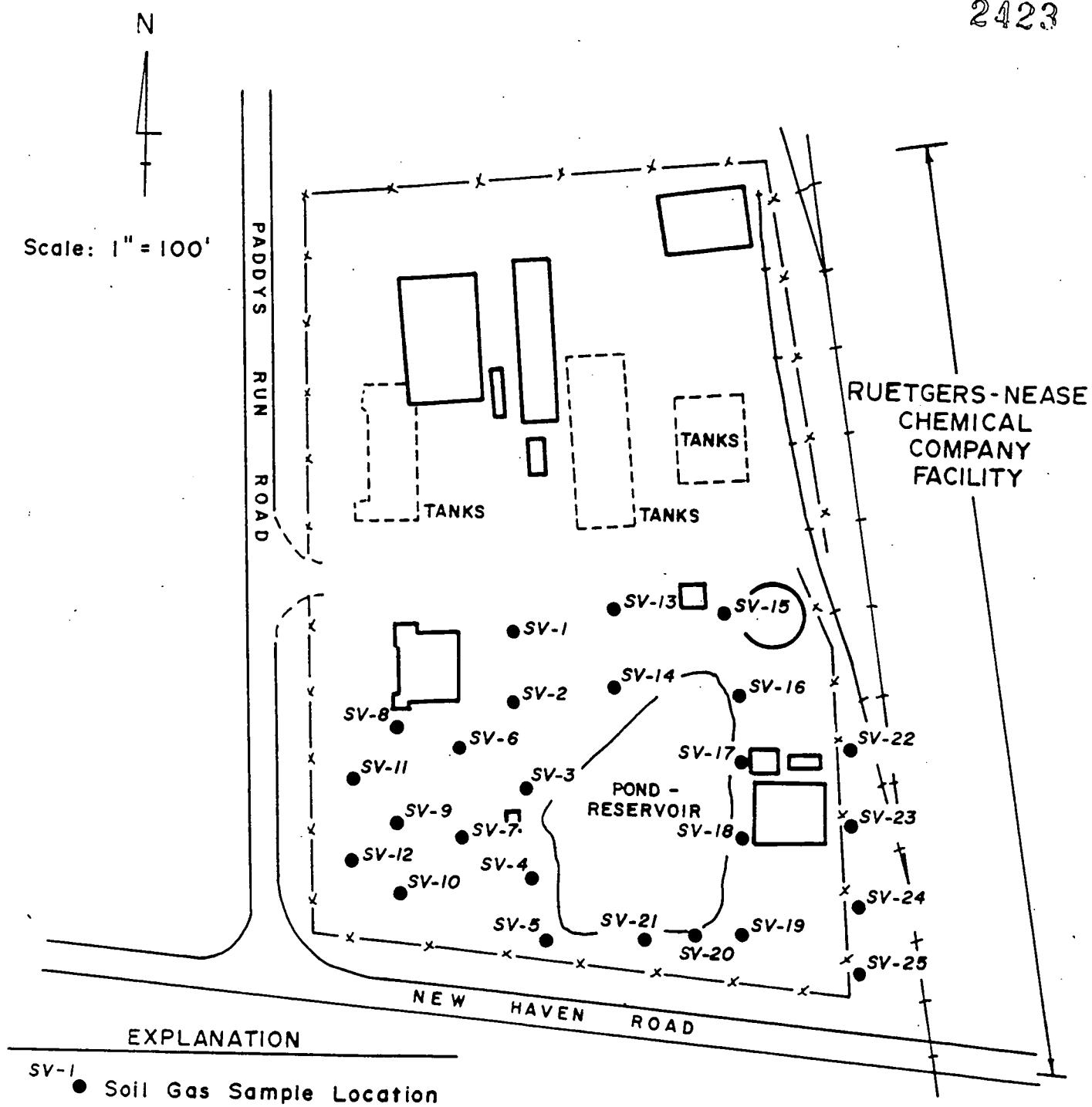


FIGURE 3-2 LOCATION OF SOIL GAS MEASUREMENTS ON THE RUETGERS-NEASE PROPERTY

sampling. Air blanks were also run between sample points where elevated readings were noted, and periodically to assess operating functions of the Photovac.

3.5.2 Sampling Procedures

At each sampling location, a stainless steel probe was advanced to a depth of three feet using a vibratory hammer. Once this depth was reached, the instrument inlet line was connected from the Photovac to the probe. The Photovac system and test run was then activated. Typically, the test run at each sample point was 15 minutes. This provided sufficient time to detect the potential presence of the four compounds (benzene, toluene, xylene, and cumene) to be monitored. Instrument readings were recorded on a strip chart. The summary results of these analyses are presented in Table 3-3. The strip chart for each sample location and the air blanks are provided in Appendix F.

Following a sample run, the probe was cleaned of dirt, rinsed with deionized water, and purged with high purity air. Air blanks were run periodically throughout the survey to ensure the decontamination procedures were effective in removing residual compounds.

3.6 Geophysical Survey

As previously stated, the geophysical survey was not conducted because access to properties south of New Haven Road was not obtained. The Companies, in conjunction with OEPA, have assessed the need to conduct this survey based on available data. It was determined that the geophysical survey will not add substantially to the existing data base; therefore, conducting the geophysical survey is not necessary and the requirement to perform the survey has been eliminated from the Work Plan.

TABLE 3-3

CONCENTRATIONS OF BENZENE, TOLUENE, XYLENE AND CUMENE DETECTED DURING
THE SOIL GAS SURVEY ON THE RUETGERS-NEASE PROPERTY ON JUNE 26 AND 27, 1989
PRRS RI/FS
AUGUST, 1989

<u>Sample ID</u>	<u>Benzene (ppm)</u>	<u>Toluene (ppm)</u>	<u>Xylene (ppm)</u>	<u>Cumene (ppm)</u>	<u>Total Concentration^(a) (ppm)</u>
SV-1	0.038	0.105	0.016	0.018	0.177
SV-2	0.043	0.127	0.002 ^(b) 0.005	0.014	0.191
SV-3	0.031	0.157	ND ^(c)	0.080	0.268
SV-4	0.022	0.070	0.005	0.009	0.106
SV-5	0.073	0.155	0.040	0.047	0.315
SV-6	0.352	0.269	0.026	0.045	0.692
SV-7	ND	0.087	0.002	0.017	0.106
SV-8	0.019	0.173	0.002	0.042	0.236
SV-9	0.563	0.127	0.036	0.022	0.748
SV-9A	0.169	0.063	0.003	0.015	0.250
SV-10	0.106	0.128	0.002	0.020	0.256
SV-11	0.134	0.183	0.015	0.020	0.352
SV-12	0.028	0.097	0.016	ND	0.141
SV-13	ND	0.204	0.102	0.087	0.393

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TABLE 3-3 (Continued)

<u>Sample ID</u>	<u>Benzene (ppm)</u>	<u>Toluene (ppm)</u>	<u>Xylene (ppm)</u>	<u>Cumene (ppm)</u>	<u>Total Concentration^(a) (ppm)</u>
SV-14	ND	0.470	0.032 ^(b) 0.094	0.050	0.646
SV-15	0.092	0.001	ND	ND	0.093
SV-16	0.305	0.372	0.304	0.479	1.460
SV-17	0.005	0.060	0.179	1.178	1.422
SV-18	0.289	0.855	2.339	18.58	22.063
SV-19	0.064	0.097	0.041	0.258	0.460
SV-20	0.090	0.153	0.107	0.500	0.850
SV-21	0.030	0.061	ND	0.293	0.384
SV-22	0.006	0.025	0.005	0.033	0.069
SV-23	ND	0.160	0.011	0.147	0.318
SV-24	ND	0.074	0.025	0.105	0.204
SV-25	0.048	0.068	0.036	0.159	0.311

(a) Includes concentrations of benzene, toluene, xylene and cumene.

(b) Two isomers of xylene detected.

(c) Compound not detected.

4.3 Air Investigation

The perimeter air investigation of the A&W and R-N plant boundaries was conducted using a portable FID (OVA-128). Organic vapors were only detected along the perimeters of the A&W and R-N plant boundaries at a few locations. At the R-N plant site, detected concentrations ranged from 0.2 to 3.0 ppm (Figure 4-1) and from 0.1 to 0.8 ppm at the A&W plant site (Figure 4-2). It should be noted that the organic vapor concentrations reflect equivalent concentrations of methane; the standard gas used to calibrate the instrument. Also, it was observed during the survey that the wind direction was from the northeast.

4.4 Soil Gas Survey

The results of the soil gas survey are presented in Table 3-3 and shown on Figure 4-3. Exclusive of sample point SV-18, all total concentrations (i.e., summation of benzene, toluene, xylene and cumene) were less than 1.5 ppm. At sample point SV-18, the total concentration was 22.06 ppm of which cumene (18.58 ppm) was the major component of the total. This sample was taken along the eastern border of the R-N lagoon.

Except for sample point SV-18, benzene was found to range from nondetected to 0.563 ppm, toluene from 0.001 to 0.470 ppm, xylene from nondetected to 0.304 ppm and cumene from nondetected to 1.178 ppm. Except for SV-18, the majority (97%) of the BTX and cumene concentrations were below 1 ppm.

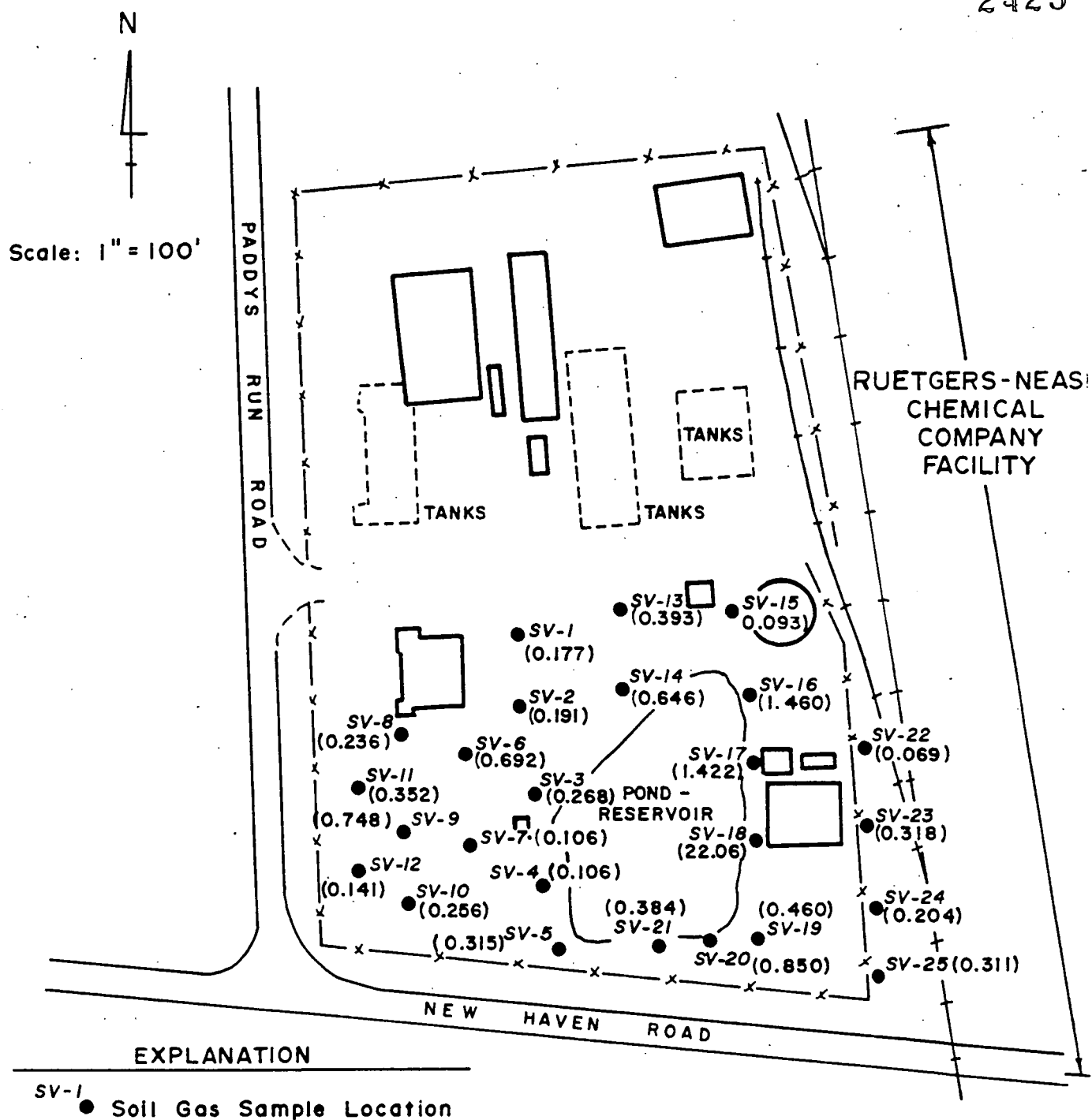


FIGURE 4-3 TOTAL CONCENTRATION OF BENZENE, TOLUENE, XYLENE, AND CUMENE MEASURED DURING THE SOIL GAS SURVEY ON THE RUETGERS-NEASE PROPERTY